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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,375	07/01/2003	Ori Eisen	31718-706.201	3706
21971 7590 11/19/2008 WILSON SONSINI GOODRICH & ROSATI 650 PAGE MILL ROAD PALO ALTO, CA 94304-1050				
EXAMINER				
WEST, THOMAS C				
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3685				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/612,375

**Applicant(s)**

EISEN, ORI

**Examiner**

THOMAS WEST

**Art Unit**

3685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status of Claims***

1. This action is in reply to the Arguments/Remarks filed on 10-16-08.
2. Claims 1-23 are currently pending and have been examined.

### ***Response to Arguments***

3. Applicant's arguments filed 10-16-08 have been fully considered but they are not persuasive. Applicant's arguments will be addressed in sequential order as they were set forth in the "Remarks" section on the above date.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "spatial variations" and "without relying on a time component") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues that Kermani uses the term "distance" in an unconventional manner, without describing why this is deemed unconventional. Paragraph 4 of Eisen describes location on a keyboard in terms of distance, "the distance between the "a" and "s" keystrokes". Paragraph 4 further describes "The "location of a keystroke" is the location of the key that is depressed or activated to generate the keystroke. For example, the location of the keystroke "a" corresponds to the location of the "a" key on a standard keyboard, which is typically next to the "s" key and under the "q" key on a

standard QWERTY keyboard. Of course, the present invention can be adopted for other keyboard configurations. Likewise, the distance between keystrokes is deemed to be the shortest distance in keys, whether, vertical, horizontal or diagonal, between the keys that are depressed or activated to produce the keystrokes. This can be measured in any suitable fashion, such as the actual number of intervening spaces between keys or the actual linear distance in millimeters between keys, etc. For example, on a QWERTY keyboard, the distance between the "a" and "s" keystrokes is deemed 1 as there is a single intervening space between those keys. Thus, the distance between the "a" and the "d" keystrokes is deemed, for the purpose of the present invention, 2 keys, since there are two intervening key spaces between those individual keys, etc. The distance between an "f" and a "t" or between an "h" and a "l" is deemed 1, again, because there is one space between those keys of the standard QWERTY keyboard. Alternatively, the linear distance between the "a" and the "s" keystrokes on a QWERTY keyboard is about 2 centimeters; the distance between the "a" and the "d" keystrokes is about 4 centimeters (two spaces); etc. Of course, these concepts can apply to any keyboard, not just a QWERTY keyboard. For example, a cell phone has a keyboard, denominated a keypad with keys that correspond to numbers and letters. On a cell phone keypad, the keystrokes "a", "b" and "c" all correspond to the "2" key, so the distance between those keystrokes is deemed zero. The distance between the "a" and "t" keystrokes can be 2 keys since the number of spaces between those two keys on a keypad numbers 2 or in linear dimension, about 0.8 centimeters (0.4 centimeters per space), etc.

The location of a key relative to another key is shown in Kermani by the distance calculation, "It can be seen from equation (2) that the distance  $d_{sub.i}$  for each character is calculated as the difference between the time lapse between the two adjacent characters as entered by the user minus the mean time lapse of model divided by the sum of the mean and the standard deviation for that character (column 5, lines 62-67)" Kermani also shows the relationship between keystroke distance and the time lapse between keystrokes. This answers the applicant's further argument that distance is measured independent of time, which the Examiner holds cannot be done based on the above Kermani reference. This also answers applicants argument the neither Kermani nor Brown assign a keystroke score based upon time. Kermani assigns a keystroke sequence timing score, which includes the distance factor  $d_i$  (column 5, lines 39-41). Therefore both the instant application and Kermani use a weighted average (mean) to calculate a score. Weighted in the sense that key values are assigned based on the key location relative to another key (standard deviation for character  $i$ ), which is involved in calculating distance between the keys. Both the instant application and Kermani compare a current password entry with a predetermined value, (Kermani col. 4, lines 30-38 mean and standard deviation values). With regard to the Brown and Kroll references pertaining to a score based on location, Kermani was cited for this limitation.

The location

***Claim Rejections - 35 USC §101***

4. 35 U.S.C. §101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-9, 15-23 are rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter.

Based on Supreme Court precedent and recent Federal Circuit decisions, § 101 process must (1) be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. If neither of these requirements is met by the claim(s), the method is not a patent eligible process under 35 U.S.C. § 101.

In this particular case, claim 1 and dependent claims 2-9 lack sufficient technology. (Diamond v. Diehr, 450 U.S. 175, 184 (1981); Parker v. Flook, 437 U.S. 584, 588 n.9 (1978); Gottschalk v. Benson, 409 U.S. 63, 70 (1972); Cochrane v. Deener, 94 U.S. 780, 787-88 (1876)). Claims 2-9 are also rejected as each depends from claim 1.

6. Claims 15 and 21 are directed to instructions stored on a medium for performing an algorithm where the algorithm does not produce a useful concrete and tangible result. Claims 16-20 and 22, 23 are also rejected as each depends from either claim 15 or 21.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3, 7, 8, 10, 11, 15, and 21 are rejected under U.S.C. 102(b) as being unpatentable over Kermani, U.S. Patent No. 6,895,514.

**Claim 1:**

Kermani, as shown, discloses the following limitations:

- assigning a score to a first of said keystrokes  $[[K1]]k_1$  (see at least column 5, lines 37-41);
- assigning a score to succeeding keystrokes after  $[[K1]]k_1$  based upon the location of the keystroke in relation to another keystroke (see at least column 5, lines 62-67);
- summing at least three of the scores of the keystrokes in the string to obtain a string score (see at least column 4, lines 35-38);
- dividing the string score by the number of keystrokes used to determine the sum to obtain a normalized string score and (see at least column 4, lines 35-38);
- comparing the normalized string score to a predetermined value of normalized string scores to determine the likelihood that the keystroke

entries are accurate (see at least column 2, lines 29-32).

**Claim 2:**

Kermani, as shown, discloses the following limitations:

- the keystroke  $[[K2]]_{k_2}$  is immediately after the keystroke  $[[K1]]_{k_1}$  and each succeeding keystroke is provided with a score based upon its location from a preceding keystroke (see at least column 5, lines 62-67).

**Claim 3:**

Kermani, as shown, discloses the following limitations:

- each keystroke's score after  $k_1$  is based on its location in relation to the immediately preceding keystroke (see at least column 5, lines 62-67).

**Claim 7:**

Kermani, as shown, discloses the following limitations:

- further comprising making a preliminary determination of a risk of fraud or error based upon the comparative value of the normalized string score to said predetermined value of normalized string scores (see at least column 2, lines 16-22).

**Claim 8:**

Kermani, as shown, discloses the following limitations:



- further including calculating the normalized string scores for a plurality of strings, summing the normalized string scores to obtain a transactional score, and dividing the transactional score by the number of strings in the sum to obtain a normalized transactional score and determining accuracy based upon the value of the normalized transactional score in comparison to a predetermined value of normalized transactional scores (see at least column 4, lines 35-38).

**Claim 10:**

Kermani, as shown, discloses the following limitations:

- a processor (see at least column 4, lines 6-17);
- a memory coupled to said processor, said memory storing keystroke fraud instructions adapted to be executed by said processor to assign a score to a keystroke  $K_m$  based upon the location of the keystroke in relation to another keystroke  $K_n$ , to sum the scores of the keystrokes in a string entered on the keyboard to obtain a string score and to divide the sum of the keystroke scores by the number of keystrokes in the string to obtain a normalized string score and a means for comparing said normalized string score to a predetermined score to determine the accuracy of said keystroke entries (see at least column 4, lines 6-17).

**Claim 11:**

Kermani, as shown, discloses the following limitations:

- keystroke fraud instructions are further adapted to be executed by said processor to store in said memory an indication of the absence of accuracy associated with said string based upon said normalized string score in comparison to a range of said predetermined scores (see at least column 8, lines 17-21).

**Claim 15:**

Kermani, as shown, discloses the following limitations:

- assigning a score to a keystroke  $k_m$  based upon the location of the keystroke from another keystroke  $k_n$  (see at least column 5, lines 62-67);
- summing the scores of at least three of the keystrokes in the string to obtain a string score (see at least column 4, lines 35-38);
- dividing the sum of the keystroke scores by the number of keystrokes in the sum to obtain a normalized string score and comparing the same to a predetermined score to determine the probable accuracy of entered keystrokes (see at least column 4, lines 35-38 and column 2, lines 29-32).

**Claim 21:**

Kermani, as shown, discloses the following limitations:

- means for assigning a score to a keystroke  $k_m$  based upon the location of the keystroke in relation to another keystroke  $k_n$  (see at least column 5, lines 62-67);
- means for summing the scores of the keystrokes in a string to obtain a string score (see at least column 4, lines 35-38);
- means for dividing the sum of the keystroke scores by the number of keystrokes in the sum to obtain a normalized string score and comparing the same to a predetermined value indicative of possible fraud or error (see at least column 4, lines 35-38 and column 2, lines 16-22).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4-6, 9, 16, 17, 20, and 23 are rejected under U.S.C. 103(a) as being unpatentable over Kermani, U.S. Patent No. 6,895,514 in view of Brown, US Patent No. 5,557,686.

**Claim 4:**

Kermani discloses the limitations as shown above. Kermani does not disclose the following limitation, but Brown does:

- there is at least two intervening keystrokes between keystrokes  $[[K1]]_{k_1}$  and  $[[KN]]_{k_n}$  (see at least column 5, lines 28-30 and column 5, lines 57-61).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kermani to include the keystroke method of Brown since this allows for measuring timing between keystrokes, which ultimately aids in identifying the user.

**Claims 5, 6, 9, 16, 17:**

Kermani, discloses a keystroke score (col. 5, lines 62-67). Kermani does not disclose a whole number, linear location, and enhanced value, but Brown does:

- the score of keystroke  $k_2 \dots k_n$  is an whole number plus the least number of adjacent key spaces between keystrokes  $k_1 \dots k_{n-1}$  (see at least column 5, lines 28-38 and column 5, lines 59-61, fig. 10).
- wherein the score of keystroke K2 is based upon the linear distance between keystrokes K1 and K2 (see at least column 5, lines 28-30 and column 5, lines 59-61).
- further including adding an enhanced value to the score of a keystroke if the keystroke is shifted (see at least column 7, lines 11-17).

- the score of keystroke  $k_m$  is a whole number plus the least number of adjacent keys spaces between keystrokes  $k_m$  and  $k_n$  (see at least column 5, lines 59-61).
- the score of keystroke  $k_m$  is based upon the linear distance between keystrokes  $k_m$  and  $k_n$  (see at least column 5, lines 28-32).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kermani to include the keystroke method of Brown since this allows for measuring timing between keystrokes, which ultimately aids in identifying the user.

**Claim 20:**

Kermani, discloses the limitations as shown above. Kermani does not disclose the following limitation, but Brown does:

- instructions are further adapted to be executed by said processor to perform the method including adding an enhanced value to the score of keystroke  $k_m$ , if keystroke  $k_m$  is shifted (see at least column 7, lines 11-17).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kermani to include the keystroke method of Brown since this allows for measuring keystroke timing, which ultimately aids in identifying the user.

**Claim 23:**

Kermani discloses the limitations as shown above. Kermani does not disclose the following limitation, but Brown does:

- means for determining if a keystroke is shifted, and adding an enhanced value to the score of the keystroke if the keystroke is shifted (see at least column 7, lines 11-17).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kermani to include the keystroke method of Brown since this allows for measuring keystroke timing, which ultimately aids in identifying the user.

11. Claims 12-14, 18, 19, and 22 are rejected under U.S.C. 103(a) as being unpatentable over Kermani, U.S. Patent No. 6,895,514 in view of Brown, US Patent No. 5,557,686 and in further view of Kroll, U.S. Patent No. 6,405,922.

**Claim 12:**

Kermani/Brown disclose the limitations as shown above. Kermani/Brown do not disclose the following limitation, but Kroll does:

- keystroke fraud instructions are further adapted to be executed by said processor to calculate the accuracy of an online transaction entered by keystroke entries on a keyboard comprising summing the normalized string scores for a plurality of strings to obtain a transactional score, and

dividing the sum of the normalized string scores by the number of strings in the sum to obtain a normalized transactional score, whereby the normalized transactional score is compared to a predetermined score to determine the accuracy of the online transaction (see at least column 4, lines 47-48)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kermani/Brown to include the keystroke method of Kroll since this further allows for measuring keystroke timing, which ultimately aids in identifying fraudulent users.

**Claim 13:**

Kermani/Brown disclose the limitations as shown above. Kermani/Brown do not disclose the following limitation, but Kroll does:

- keystroke fraud instructions are further adapted to be executed by said processor to store in said memory an indication of the absence of accuracy based upon said normalized transactional score (see at least column 4, lines 47-48).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kermani/Brown to include the keystroke method of Kroll since this further allows for measuring keystroke timing, which ultimately aids in identifying fraudulent users.

**Claim 14:**

Kermani/Brown disclose the limitations as shown above. Kermani/Brown do not disclose the following limitation, but Kroll does:

- keystroke fraud instructions are further adapted to be executed by said processor to add an enhanced value to the score of certain of said keystrokes if said keystrokes are shifted (see at least column 4, lines 47-48).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kermani/Brown to include the keystroke method of Kroll since this further allows for measuring keystroke timing, which ultimately aids in identifying fraudulent users.

**Claim 18:**

Kermani/Brown disclose the limitations as shown above. Kermani/Brown do not disclose the following limitation, but Kroll does:

- instructions are further adapted to be executed by said processor to perform the method including calculating the normalized string scores for a plurality of strings, summing the normalized string scores to obtain a transactional score, and dividing the sum of the normalized string scores by the number of strings in the sum to obtain a normalized transaction score and comparing the same to a predetermined score to determine the



probability of error or fraud in said keystroke entries in said online transaction (see at least column 4, lines 47-55).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kermani/Brown to include the keystroke method of Kroll since this further allows for measuring keystroke timing, which ultimately aids in identifying fraudulent users.

**Claim 19:**

Kermani/Brown disclose the limitations as shown above. Kermani/Brown do not disclose the following limitation, but Kroll does:

- instructions are further adapted to be executed by said processor to perform the method including determining a risk of fraud or error based upon the value of the normalized transactional score in comparison to one or more predetermined scores (see at least column 4, lines 47-55).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kermani/Brown to include the keystroke method of Kroll since this further allows for measuring keystroke timing, which ultimately aids in identifying fraudulent users.

**Claim 22:**

Kermani/Brown disclose the limitations as shown above. Kermani further discloses the following limitation:

- means for calculating the normalized string scores for a plurality of strings (see at least column 4, lines 35-38);

Kermani/Brown disclose the limitations as shown above. Kermani/Brown do not disclose the following limitation, but Kroll does:

- means for summing the normalized string scores to obtain a transactional score (see at least column 4, lines 47-48);
- means for dividing the sum of the normalized string scores by the number of strings in the sum to obtain a normalized transactional score and comparing the same to a predetermined score indicative of possible fraud or error (see at least column 4, lines 47-48).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kermani/Brown to include the keystroke method of Kroll since this further allows for measuring keystroke timing, which ultimately aids in identifying fraudulent users.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas West whose telephone number is 571-270-1236. The examiner can normally be reached on M-R 7:30am - 5pm EST, ALT Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Calvin L. Hewitt, can be reached on (571) 272-6709. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thomas West  
Patent Examiner  
Art Unit 3685  
November 10, 2008

/Calvin L Hewitt II/

Supervisory Patent Examiner, Art Unit 3685